

## PRODUCT DATA SHEET

PRODUCT NAME: S22 STEPBLOCK  
PRODUCT CATEGORY: RETAINING WALL BLOCKS

**ENVIRONMENTAL RATING: CONTAINS UP TO 60% RECYCLED CONTENT**

DIMENSIONS (LxWxH)	390mm X 220mm X 220mm
STEP RISER HEIGHTS	110mm / 147mm / 220mm
COMPRESSIVE STRENGTH	14 Mpa
UNIT MASS	25.00 Kg
BLOCKS / RUNNING METER	4.6
STEP MASS / RUNNING METER	115kg (without cavity in-fill)
BLOCKS / M2 (based on riser height)	20.7 (220mm) / 30.9 (147mm) / 41.3 (110mm)
STEP MASS / M2	518kg (220mm) / 773kg (147mm) / 1033kg (110mm)
IN-FILL VOLUME	Front core – 0.0026m <sup>3</sup> / Back core – 0.0024m <sup>3</sup> / Total – 0.0050m <sup>3</sup>
NO / PALLET	50
CEMENT	Pretoria Portland Cement (SA)
COLOURS AVAILABLE	Sandstone / Charcoal / Concrete grey

SPECIAL FEATURES 3 Adjustable step heights and a seating layout  
Precast groove to accommodate LED strip lighting



Product Description

A cost-effective concrete step and seating solution, the GreenLock S22 Stepblocks are ideal for installing steps or seating arrangements with ease and to any length. They are non-slip, efficient, economical, and durable.

Part of the GreenLock™ range of retaining wall blocks and complementary products.



To see the full range of Greenlock products, visit [www.greenlock.co.za](http://www.greenlock.co.za)



Seating layout



LED lighting installed





110mm riser height  
(Cannot use LED lighting groove)



147mm riser height  
(Can use LED lighting groove)



220mm riser height  
(Can use LED lighting groove)





Charcoal

Concrete grey

Sandstone

## **GreenLock S22 Step and Seating block**

### **Installation Guidelines**

**Please note that engineering directives always supersede**

1. The GreenLock S22 step and seating blocks are ideal for installing Steps or Seating arrangements with ease and to any length. They are non-slip, efficient to install, economical, and durable. The S22 can be laid with a 110mm riser with a 350mm tread, 147mm riser with a 330mm tread, or a 220mm riser with a 270mm tread. The 147mm riser is the most common step height used.

2. Stairs higher than 2m should be designed by an Engineer.
3. Check the in-situ soil condition to determine the correct type of sub-base to be used.
4. Excavate to line and to the required gradient or bench to accommodate the S22 step block.
5. Compact the benched soil, and if necessary, use stone or soilcrete (3% cement mixed with sand) for additional support and stability.
6. For a staircase above 2m in height, a foundation should be cast as per the engineer's instructions, using 20MPa concrete at the toe, to accommodate the first row of steps and to support the rest of the staircase structure.
7. Set out the first row of concrete-filled blocks and place on a thin mortar bed.
8. Fill the block cavities of the S22 block with a wet concrete mix and insert a Y8-Y12 reinforcing bar through the wet concrete and all the blocks. This will assure a solid footing for the first step row.
9. Repeat the same at the top of the stairs with the last row of steps installed.
10. Compact the imported subbase or the soil behind each step as you progress with each row of steps installed.
11. Ensure that the steps are installed horizontally in all directions. A very slight angle (max.2 degrees) toward the rounded front edge of the block tread can also allow storm water to cascade over the step edge to eliminate water pooling on the steps.
12. It is strongly advised that the two horizontal cavities of the S22 blocks should be closed with a mortar mix at each end, to prevent rats, snakes, and insects from sheltering or nesting in them.
13. The project engineer may require all the rear cavities of the blocks to be filled with a semi-wet cement mix, and that a Y8–Y12 reinforcing rod is inserted through the width of the step tread. This increases the strength of each step and the strength of the whole staircase structure.

14. In any event the first and the top step should always have reinforcing bars pushed through the still-wet cement mix. The easiest way to do this is to fill each S22 block to be installed with the semi-wet cement mix before laying the block into position. Once one full step width is installed, push the cut-to-length reinforcing rod through all the blocks. Touch up both cavities of the two end blocks with the appropriate colour mortar mix to a smooth plastered finish.
15. Use an experienced contractor to install your steps and seating, to eliminate possible failure. Ask your supplier to recommend a suitable contractor.
16. A hidden 12V or 24V outdoor strip light may be installed in a groove at the back of the 147mm riser, by a suitably qualified electrician. The strip light can only be installed in the 147 mm and the 220mm riser, giving a classy indirect lighting effect.

## **General Guidelines For Constructing Exterior Stairs**

**Please note that the GreenLock S22 stair and seating block conforms to all laid  
down standard design guidelines**

**1. An exterior stair should have the following dimensions based on standard design guidelines:**

- A minimum width of 1m (see item 2 underneath)
- A minimum tread depth of 250mm (see item 3 underneath)
- A minimum riser height of 100mm and a maximum height of 200mm,
- For emergency stairs the 220mm riser can be used. (see item 4 underneath)

In the event that stairs have an overhead obstruction/ceiling, then the height from stair treads to the obstruction/ceiling should be at least 2m

## 2. Exterior Stair Width Requirements

The required width measurement of a stair tread is a minimum of 1m, which is equal to 4-5 S22 blocks. This minimum dimension applies for domestic and residential exterior staircases, which serve less than 50 occupants.

For commercial and residential staircases which serve more than 50 occupants, the minimum width requirement is 1.2m (6 x S22 blocks)

## 3. Exterior Stair Depth Requirements

For exterior staircases, each tread must be a minimum of 250mm.

This measurement is taken from the front lip of a tread to the back corner of a tread.

This dimension has been deemed to be the minimum amount of foot space required by most users of stairs, ensuring that a good grip is achieved when ascending or descending the stairs to minimise possible accidents and or injuries.

## 4. Exterior Stair Riser Requirements

The riser on a staircase is the vertical dimension between each tread. For exterior staircases, in both residential and commercial applications, the riser must have a minimum height of 100mm and a maximum height of 200mm. Only for emergency stairs and where space and gradient dictate, a tread height of a maximum of 220mm can be used. Stair riser heights should never vary on the same staircase.

Please note that these minimum and maximum dimensional requirements are in place to help reduce the incidence of falls and missteps.

## 5. Colour options and use of coloured grouting or mortar

For all grouting, screed, and visible mortar use when installing steps and stairs, the appropriate colour oxide should be added to the grouting or mortar mix to ensure colour matching with the stairs.

Sandstone = 1.9kg of oxide per 50kg pocket of cement (3.80% by cement weight)

Charcoal = 1.0kg of oxide per 50kg pocket of cement (2.00% by cement weight)

Both charcoal and sandstone colour oxides are available from Cape Brick.

## 6. Disclaimer

*The information supplied in this document is based on practical field experience, gained under typical South African conditions. It is provided in good faith, and Cape Brick, GreenLock employees, and their license holders and agents make no claims, either express or implied or otherwise, as to the suitability of this product for any specific project. The advice and expertise of a suitably qualified and experienced engineer is essential and will always supersede the advice provided by anyone else.*